

FIG. 1

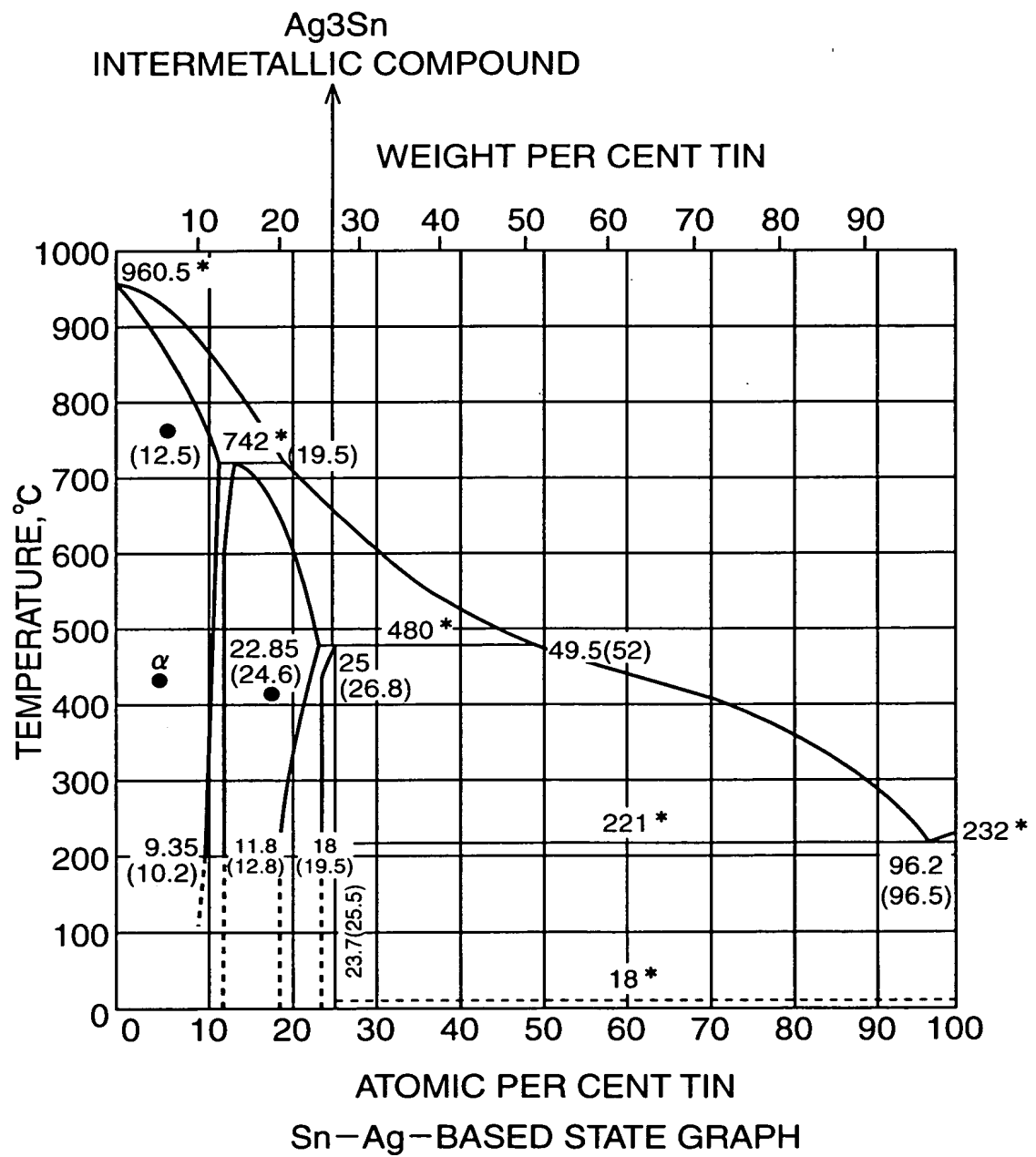
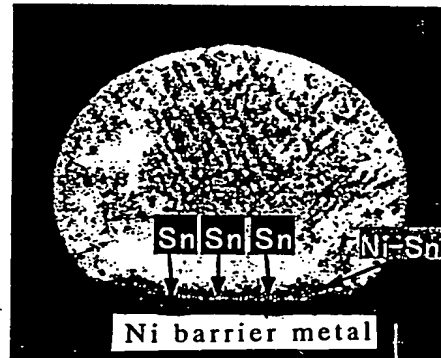


FIG. 2



REACTION AT THE BONDING INTERFACE

6σ VALUE IS CALCULATED

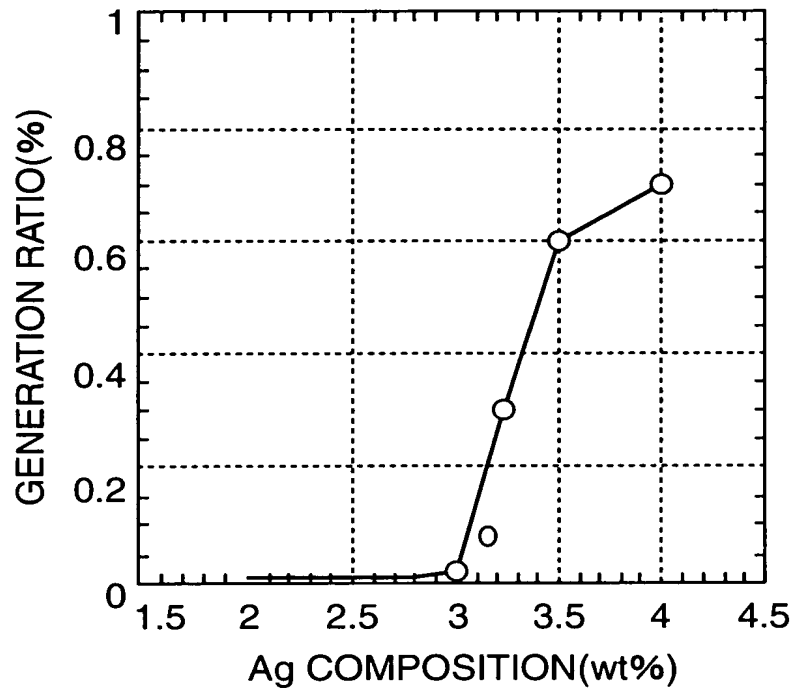
FROM THE NORMAL DISTRIBUTION.

IN CONSIDERATION OF THE Sn REDUCTION
IN THE SOLDER MATERIAL AT BONDING.



UPPER LIMIT OF Ag COMPOSITION

FIG. 3



PROJECTION SHAPE GENERATION RATIO IN THE SOLDER ALLOY
OF EACH Ag COMPOSITION

FIG. 4A



FIG. 4B



FIG. 4C



FIG. 4D

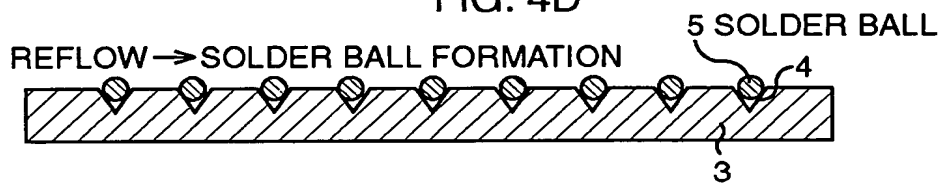


FIG. 4E

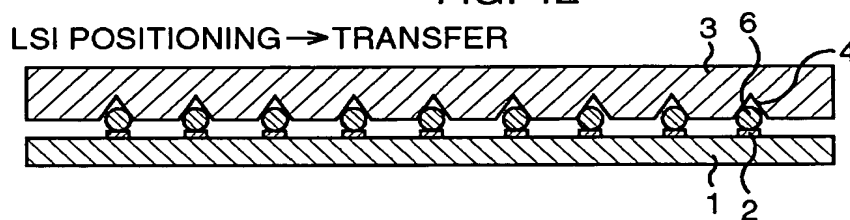


FIG. 4F

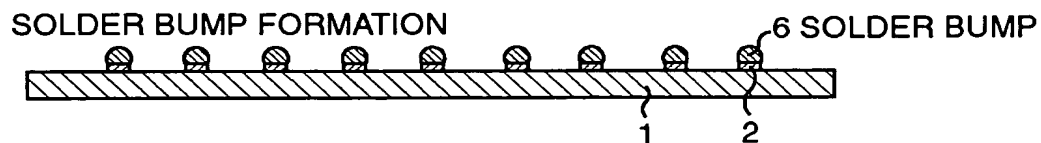
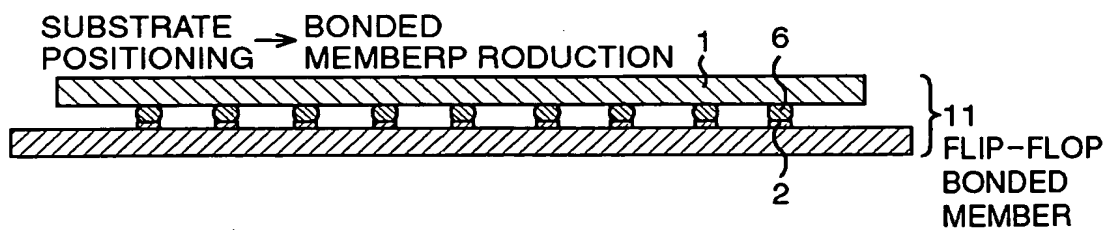
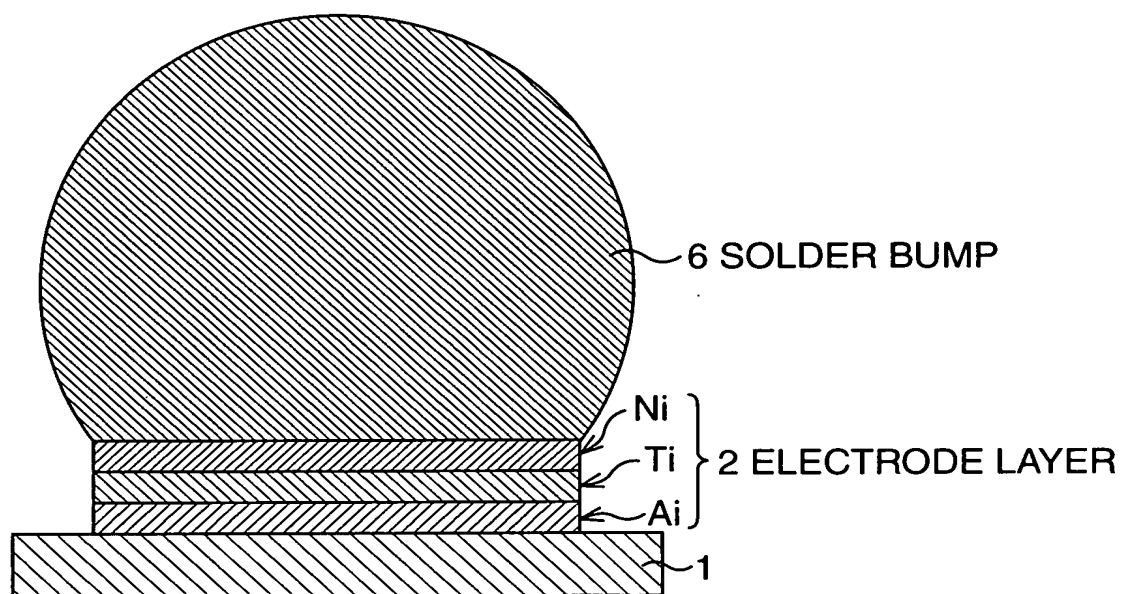


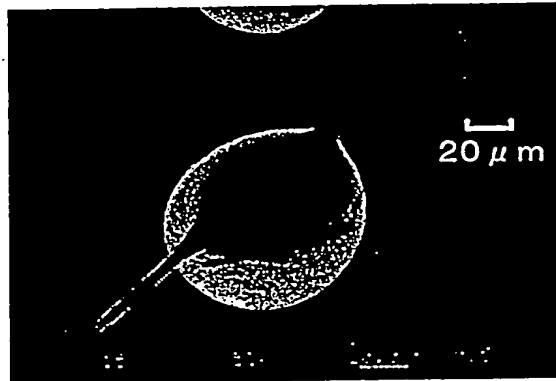
FIG. 4G



DIMPLE METHOD STEPS AND FLIP-CHIP BONDING STEPS

FIG. 5





PROJECTION SHAPE

NAME	ADDRESS	CITY	STATE	ZIP
Mr. J. H. Jones	123 Main St.	Springfield	Ill.	62761
Mr. W. R. Smith	456 Oak Ave.	Chicago	Ill.	60601
Mr. T. L. Brown	789 Elm St.	Peoria	Ill.	61601
Mr. C. D. White	101 Maple Dr.	Rockford	Ill.	61101
Mr. E. F. Green	202 Pine St.	Decatur	Ill.	62521
Mr. G. H. Black	303 Cedar Ave.	Normal	Ill.	62451
Mr. I. J. Gray	404 Birch St.	Urbana	Ill.	61501
Mr. K. L. Hall	505 Walnut Dr.	Macomb	Ill.	61451
Mr. M. N. King	606 Spruce Ave.	Streator	Ill.	61361
Mr. O. P. Lee	707 Ash St.	Lacon	Ill.	61041
Mr. Q. R. Scott	808 Hickory Dr.	Shelburne	Ill.	61351
Mr. S. T. Walker	909 Willow St.	Waukegan	Ill.	60081
Mr. U. V. Young	1010 Poplar Ave.	Winnetka	Ill.	60091
Mr. X. Y. Allen	1111 Sycamore St.	Wilmette	Ill.	60091
Mr. Z. A. Baker	1212 Chestnut Dr.	Winthrop Harbor	Ill.	60091
Mr. B. C. Carter	1313 Magnolia Ave.	Waukegan	Ill.	60081
Mr. D. E. Evans	1414 Dogwood St.	Winnetka	Ill.	60091
Mr. F. G. Fisher	1515 Redwood Dr.	Winthrop Harbor	Ill.	60091
Mr. H. I. Harris	1616 Cypress Ave.	Winnetka	Ill.	60091
Mr. J. K. Ingram	1717 Juniper St.	Winthrop Harbor	Ill.	60091
Mr. L. M. Jordan	1818 Fir Dr.	Winnetka	Ill.	60091
Mr. N. O. Keller	1919 Hemlock Ave.	Winthrop Harbor	Ill.	60091
Mr. P. Q. Lester	2020 Spruce St.	Winnetka	Ill.	60091
Mr. R. S. Martin	2121 Cedar Dr.	Winthrop Harbor	Ill.	60091
Mr. T. U. Miller	2222 Birch Ave.	Winnetka	Ill.	60091
Mr. V. W. Moore	2323 Walnut St.	Winthrop Harbor	Ill.	60091
Mr. X. Y. Nelson	2424 Spruce Dr.	Winnetka	Ill.	60091
Mr. Z. A. Owen	2525 Ash Ave.	Winthrop Harbor	Ill.	60091
Mr. B. C. Parker	2626 Hickory St.	Winnetka	Ill.	60091
Mr. D. E. Quinn	2727 Willow Dr.	Winthrop Harbor	Ill.	60091
Mr. F. G. Russell	2828 Poplar Ave.	Winnetka	Ill.	60091
Mr. H. I. Scott	2929 Sycamore St.	Winthrop Harbor	Ill.	60091
Mr. J. K. Taylor	3030 Chestnut Dr.	Winnetka	Ill.	60091
Mr. L. M. Thomas	3131 Magnolia Ave.	Winthrop Harbor	Ill.	60091
Mr. N. O. Turner	3232 Dogwood St.	Winnetka	Ill.	60091
Mr. P. Q. Vance	3333 Redwood Dr.	Winthrop Harbor	Ill.	60091
Mr. R. S. Warren	3434 Cypress Ave.	Winnetka	Ill.	60091
Mr. T. U. Weber	3535 Juniper St.	Winthrop Harbor	Ill.	60091
Mr. V. W. White	3636 Fir Dr.	Winnetka	Ill.	60091
Mr. X. Y. Wright	3737 Hemlock Ave.	Winthrop Harbor	Ill.	60091
Mr. Z. A. Young	3838 Spruce St.	Winnetka	Ill.	60091
Mr. B. C. Adams	3939 Cedar Dr.	Winthrop Harbor	Ill.	60091
Mr. D. E. Baker	4040 Birch Ave.	Winnetka	Ill.	60091
Mr. F. G. Carter	4141 Walnut St.	Winthrop Harbor	Ill.	60091
Mr. H. I. Evans	4242 Spruce Dr.	Winnetka	Ill.	60091
Mr. J. K. Fisher	4343 Ash Ave.	Winthrop Harbor	Ill.	60091
Mr. L. M. Green	4444 Hickory St.	Winnetka	Ill.	60091
Mr. N. O. Hall	4545 Willow Dr.	Winthrop Harbor	Ill.	60091
Mr. P. Q. King	4646 Poplar Ave.	Winnetka	Ill.	60091
Mr. R. S. Lee	4747 Sycamore St.	Winthrop Harbor	Ill.	60091
Mr. T. U. Miller	4848 Chestnut Dr.	Winnetka	Ill.	60091
Mr. V. W. Moore	4949 Magnolia Ave.	Winthrop Harbor	Ill.	60091
Mr. X. Y. Nelson	5050 Dogwood St.	Winnetka	Ill.	60091
Mr. Z. A. Owen	5151 Redwood Dr.	Winthrop Harbor	Ill.	60091
Mr. B. C. Parker	5252 Cypress Ave.	Winnetka	Ill.	60091
Mr. D. E. Quinn	5353 Juniper St.	Winthrop Harbor	Ill.	60091
Mr. F. G. Russell	5454 Fir Dr.	Winnetka	Ill.	60091
Mr. H. I. Scott	5555 Hemlock Ave.	Winthrop Harbor	Ill.	60091
Mr. J. K. Taylor	5656 Spruce St.	Winnetka	Ill.	60091
Mr. L. M. Thomas	5757 Cedar Dr.	Winthrop Harbor	Ill.	60091
Mr. N. O. Turner	5858 Birch Ave.	Winnetka	Ill.	60091
Mr. P. Q. Vance	5959 Walnut St.	Winthrop Harbor	Ill.	60091
Mr. R. S. Warren	6060 Spruce Dr.	Winnetka	Ill.	60091
Mr. T. U. Weber	6161 Ash Ave.	Winthrop Harbor	Ill.	60091
Mr. V. W. White	6262 Hickory St.	Winnetka	Ill.	60091
Mr. X. Y. Wright	6363 Willow Dr.	Winthrop Harbor	Ill.	60091
Mr. Z. A. Young	6464 Poplar Ave.	Winnetka	Ill.	60091
Mr. B. C. Adams	6565 Sycamore St.	Winthrop Harbor	Ill.	60091